

IN THE CLAIMS:

Please cancel Claims 3 and 21-23 without prejudice to or disclaimer of the subject matter contained therein.

Please amend Claims 1 and 4-6, and add new Claim 24 as follows. All of the claims currently pending in the application are included for the Examiner's convenience.

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1. (Presently Amended) An optical scanning apparatus comprising:
a light source means;
deflecting means;
entrance optical means for guiding light emitted from the light source means to the deflecting means; and
scanning optical means for forming an image of the light reflectively deflected by the deflecting means, on a surface to be scanned,
wherein ~~the scanning optical means comprises a plurality of sagittal asymmetric change surfaces in which curvatures in the sagittal direction change on an asymmetric basis in the meridional direction with respect to the optical axis of the scanning optical means~~ said scanning optical means asymmetrically changes curvatures in a sagittal direction at respective positions in a meridional direction,
wherein the curvatures in the sagittal direction at respective positions in the meridional direction facing in one off-axis direction across an optical axis comprise a plurality of sagittal deformation surfaces of which magnitude relation is larger than that in curvatures in the

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sagittal direction at respective positions in the meridional direction facing in another off-axis direction across the optical axis, and

wherein a magnitude relation differs among curvatures in the sagittal direction at respective positions in the meridional direction with respect to the optical axis the sagittal deformation surfaces comprise two or more surfaces in which the curvatures in the sagittal direction at the respective positions in the meridional direction increase or decrease on a same side.

2. (Previously Cancelled).

3. (Cancelled)

4. (Presently Amended) ~~The~~ An optical scanning apparatus according to Claim 1, wherein ~~in at least one surface of said asymmetrical~~ the sagittal deformation change surfaces the curvatures in the sagittal direction become large on the side of said light source means with respect to the optical axis at respective positions in the meridional direction on a light source side are larger than those at the respective positions in the meridional direction on an anti-light source side.

5. (Presently Amended) An optical scanning apparatus comprising:
a light source means;
deflecting means;

entrance optical means for guiding light emitted from the light source means to the deflecting means; and

scanning optical means for forming an image of the light reflectively deflected by the deflecting means, on a surface to be scanned,

wherein the scanning optical means comprises a plurality of sagittal asymmetric change surfaces in which curvatures in the sagittal direction change on an asymmetric basis in the meridional direction with respect to the optical axis of the scanning optical means, and

wherein in at least one surface of said sagittal asymmetric change surfaces the curvatures in the sagittal direction have has an inflection point on one side of the optical axis in the meridional direction.

6. (Presently Amended) An optical scanning apparatus comprising:

a light source means;

deflecting means;

entrance optical means for guiding light emitted from the light source means to the deflecting means; and

scanning optical means for forming an image of the light reflectively deflected by the deflecting means, on a surface to be scanned,

wherein the scanning optical means comprises a plurality of sagittal asymmetric change surfaces in which curvatures in the sagittal direction change on an

asymmetric basis in the meridional direction with respect to the optical axis of the scanning optical means, and

wherein said scanning optical means comprises a plurality of $f\theta$ lenses, an $f\theta$ lens located closest to the deflecting means among said plurality of $f\theta$ lenses has a negative refractive power in the sagittal direction, and an $f\theta$ lens located closest to the surface to be scanned, among said plurality of $f\theta$ lenses, has a positive refractive power in the sagittal direction.

7. (Original) The optical scanning apparatus according to Claim 6, wherein all lens surfaces of said plurality of $f\theta$ lenses are formed in a concave shape opposed to said deflecting means.

8. (Previously Amended) The optical scanning apparatus according to Claim 1, wherein the following condition is satisfied:

$$k/W \leq 0.6,$$

where k is an $f\theta$ coefficient of said scanning optical means, and W is an effective scanning width of said surface to be scanned.

9. (Previously Amended) The optical scanning apparatus according to Claim 1, wherein the following condition is satisfied:

$$|\beta_s| \geq 2,$$

where β_s is a lateral magnification in the sub-scanning direction of said scanning optical means.

10. (Withdrawn) The optical scanning apparatus according to Claim 1, wherein said light source means includes a plurality of light-emitting regions for emitting a plurality of beams and the plurality of beams are guided from said light source means to said deflecting means by said entrance optical means and images of the beams reflectively deflected by said deflecting means are formed on a surface to be scanned by said scanning optical means.

11. (Withdrawn) The optical scanning apparatus according to Claim 10, wherein said sagittal asymmetric change surfaces comprise two or more sagittal modification surfaces in which magnitude relation differs among curvatures in the sagittal direction at respective positions in the meridional direction with respect to the optical axis.

12. (Withdrawn) The optical scanning apparatus according to Claim 11, wherein said sagittal deformation surfaces comprise two or more surfaces in which the curvatures in the sagittal direction at the respective positions in the meridional direction with respect to the optical axis become large or small on the same side.

13. (Withdrawn) The optical scanning apparatus according to Claim 11, wherein in at least one surface of said sagittal deformation surfaces the curvatures in the sagittal direction become large on the side of said light source means with respect to the optical axis.

14. (Withdrawn) The optical scanning apparatus according to Claim 10, wherein in at least one surface of said sagittal asymmetric change surfaces the curvatures in the sagittal direction have an inflection point only on one side in the meridional direction with respect to the optical axis.

15. (Withdrawn) The optical scanning apparatus according to Claim 10, wherein said scanning optical means comprises a plurality of $f\theta$ lenses, an $f\theta$ lens located closest to the deflecting means out of said plurality of $f\theta$ lenses has a negative, refractive power in the sub-scanning direction, and an $f\theta$ lens located closest to the surface to be scanned has a positive, refractive power in the sub-scanning direction.

16. (Withdrawn) The optical scanning apparatus according to Claim 15, wherein all lens surfaces of said plurality of $f\theta$ lenses are formed in a concave shape opposed to said deflecting means.

17. (Withdrawn) The optical scanning apparatus according to Claim 10, wherein the following condition is satisfied:

$$k/W \leq 0.6$$

where k is an $f\theta$ coefficient of said scanning optical means and W an effective scanning width on said surface to be scanned.

18. (Withdrawn) The optical scanning apparatus according to Claim 10,
wherein the following condition is satisfied:

$$|\beta_s| \geq 2$$

where β_s is a lateral magnification in the sub-scanning direction of said
scanning optical means.

19. (Previously Amended) An image-forming apparatus comprising:

the scanning optical apparatus as set forth in any one of Claims 1, 5 and 6;

a photosensitive body located at the surface to be scanned;

a developing unit for developing an electrostatic, latent image formed on said
photosensitive body with the light under scan by said scanning optical apparatus, into a toner
image;

a transfer unit for transferring the developed toner image onto a transfer
medium ; and

a fixing unit for fixing the transferred toner image on the transfer medium.

20. (Previously Amended) An image-forming apparatus comprising the
scanning optical apparatus as set forth in any one of Claims 1, 5 and 6; and

a printer controller for converting code data supplied from an external device,
into an image signal and supplying the image signal to said scanning optical apparatus.

21-23. (Cancelled)

Please add new Claim 24 as follows.

--24. (New) An optical scanning apparatus according to claim 1, wherein two

or more of the sagittal deformation surfaces asymmetrically change curvature in the sagittal
direction at respective positions in the meridional direction so as to keep a sub-scanning
magnification constant.--

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